SOME COMMON ARTIFACTS
FOUND AT HISTORICAL SITES

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Cultural Resources Report

USDA FOREST SERVICE
SOUTHWESTERN REGION
ALBUQUERQUE, N.M.

NO. 31

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INTRODUCTION

The purpose of this report is to bring to the attention of the cultural resource specialist some of the marker artifacts of the historic period in the American Southwest. The process of culture change which allows the seriation of Pueblo ceramics and other prehistoric artifacts has continued to the present. It has given the historical archeologist a vast assortment of time-related variability which is useful in assigning occupation dates to sites.

In the following papers we will bring together from published sources the salient traits of five common artifacts. For this first collection of papers firearms, nails, bottles, cans and buttons were selected by personal preference of the authors. A later report will consider ceramics, pipes, footwear, military devices and other easily dated objects which might be found during cultural resource surveys.

We do not attempt to exhaust the analytical possibilities of the topics but rather hope to facilitate field recognition and stimulate further investigation of collections. Bibliographies point the way toward more detailed analysis and should be consulted when it is necessary to develop finer time distinctions.

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NAILS

As is the case with most artifacts, there are many attributes of nails which can be described if they are studied under laboratory conditions. There are fewer, but still useful, traits which can be seen in the most superficial examination. Nails, simple tapered pieces of metal, are a good example of an artifact type which can be studied profitably at several levels of complexity. This brief paper will emphasize traits which can be observed in the course of a cultural resource field survey. One need not be a metallurgist to segregate nails into their main time periods, an exercise which helps set temporal bounds around a site.

There are four modes of nail manufacturing; cast, wrought, cut and wire. The last three types of nail will be frequently seen on sites in the southwestern United States. In the order mentioned, these nail types represent an evolutionary model of nail technology whose final stage gave us a cheap and abundant building material. Nails will often be the most commonly seen complete artifact on sites post dating the mid-19th century.

Nails found *in situ* in the ruins of a structure may help date the construction period. The location of nails of different manufacturing type may indicate that various portions of a structure were built at different times. The size of nails found may give a clue about the proportions of other building materials used, and thus, of the total structure.

The oldest kinds of nails likely to be found in the Southwest are of the hand wrought type. These were made by hundreds of individuals whose personal variations contribute to a large number of possible shapes but they can generally be recognized as distinct from the cut or wire nails. In general, wrought nails taper to a point from all sides, vary in thickness throughout their length and show no shear marks found on machine cut nails.

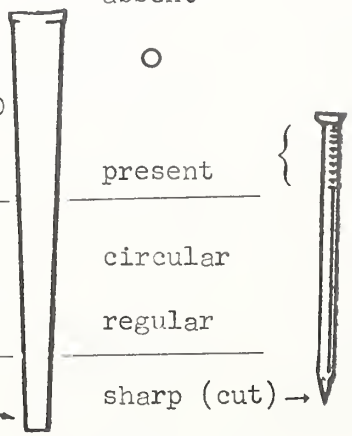
Machine cut nails, often called "square" nails, taper to a point on two opposite sides, are of uniform thickness and show traces of a smear in the metal from the cutting blade. Innovations in design of machine cutting blades and metal stock feed procedures caused different cross sections in the nail's shank as shown in Table 1. Details of cross section and head shape will often be difficult to see under field conditions because of the effects of rusting and distortion from having been driven into hard wood.

Machines for making nails from wire, rather than flat stock, were invented about 1850 and the first mill was set up to make wire nails in the United States in 1875. By 1888, only one nail in five was a wire nail but, by 1895, three-fourths of sales were of the new style (Figure 1). Between 1892 and 1895, nails were sold at a base price fo 85¢ for a 60 d. keg: smaller nails' prices were base plus a premium to cover the added labor involved in making larger numbers of smaller nails. No manufacturer would sell only the cheap 60 d. nails but would require dealers to order assortments.

The wire nail is still in general use and has almost excluded other types from the market although cut nails survive for a few special functions. Wire nails are easily recognized due to their round cross section. Figure 2c illustrates four of the most common varieties of wire nail and gives

NAIL TYPES

		Wrought	Cut	Wire
Shank	Taper	4 sides	2 sides[2]	no
	Thickness	variable	uniform	uniform
	Striations[1]	absent	present	absent
	Cross section	□ variable	⌐¬ to 1810 ⌐¬ post 1810	○
	Grip mark	absent	absent	present
Head	Shape	variable	variable	circular
	Thickness	note 3	note 3	regular
Point		variable	blunt	sharp (cut)



Notes: 1. minute parallel shear marks from cutting blades.
2. except largest sizes, after 1880, which taper on all four sides.
3. head thickness is often a function of the force used to drive the nail as much as being a trait of the manufacturing technique.

a full scale comparison of sizes useful for describing finds. The penny-weight system which sets the relationship of length and number per pound has been fixed since 1880 so, for most of our finds, its use will describe the artifact in terms of its maker

Marker Dates

-to 1850	hand wrought and cast nails.
1890	inception of machine made square cut nails.
1900	wire nails for all but a few special purposes.

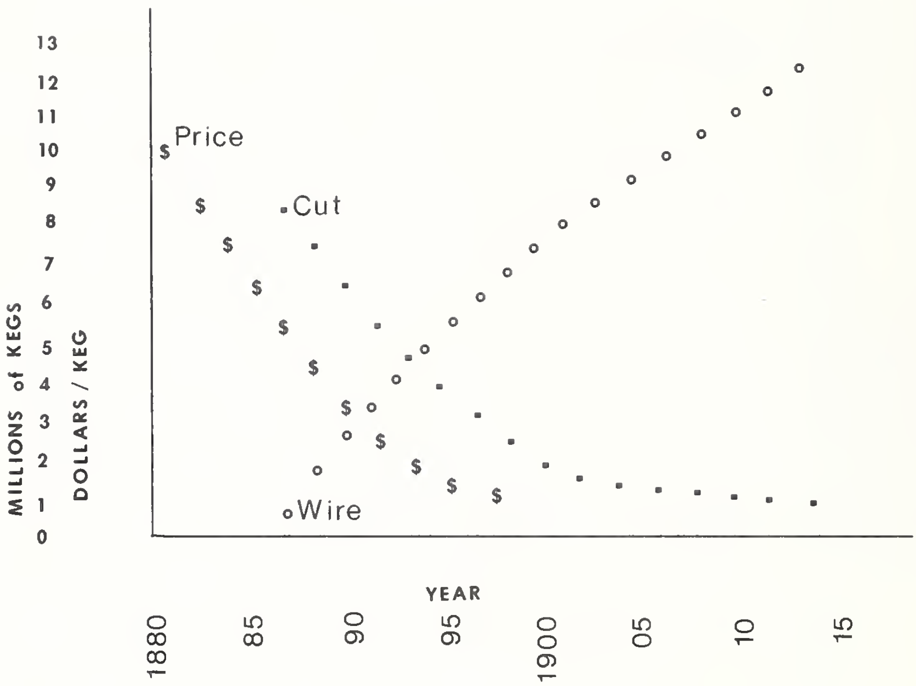
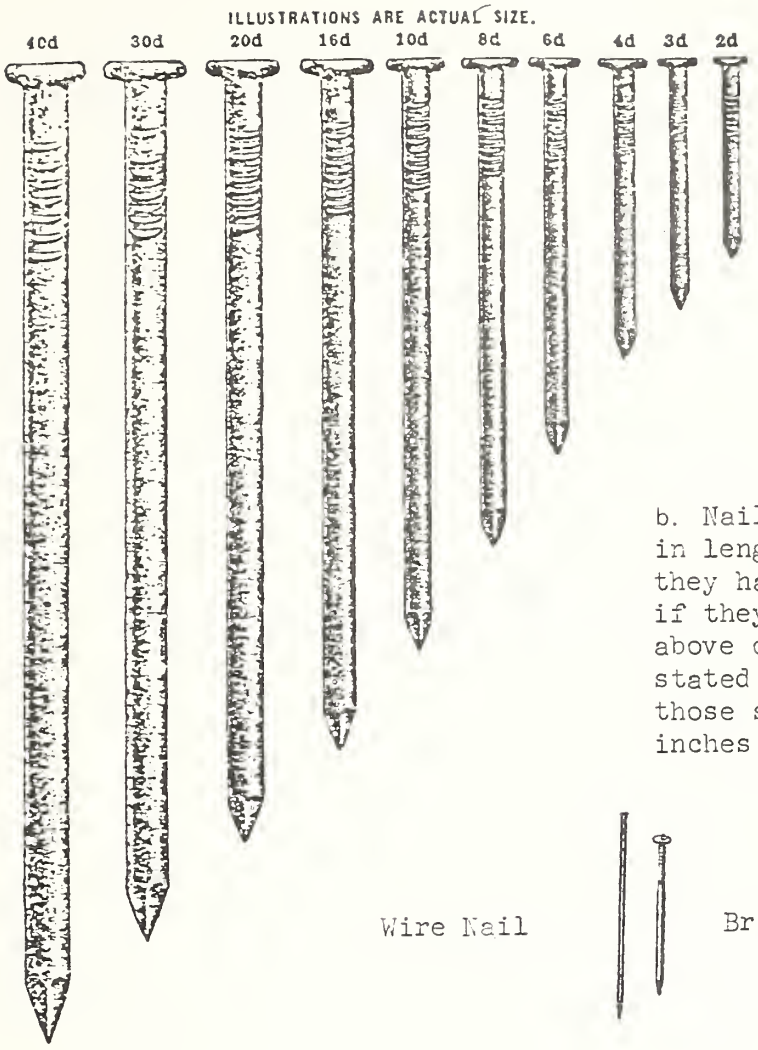


Figure 1. Production of wire nails and cut nails. Price shown is base price for wire nails. Source; Priess 1973: 89 and Fontana and Greenleaf 1962:48.

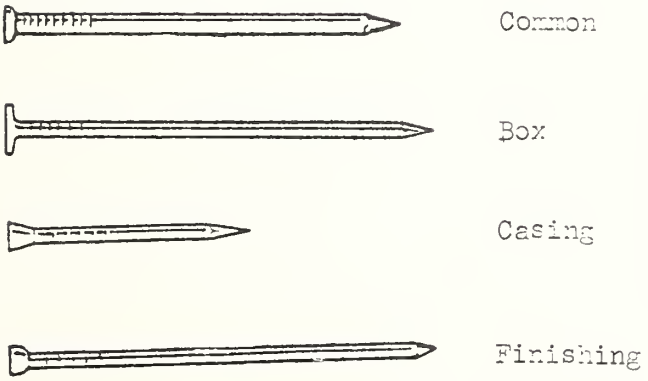


a. Common Nail shown in most popular sizes.

b. Nails smaller than 1 inch in length are called brads if they have a head and wire nails if they do not. Size of nails above one inch in length is stated in "pennies" and for those shorter it is given in inches.

Wire Nail

Brad



c. Box nails differ from common nails only by having smaller diameters for the same lengths. Casing and finishing nails have the same thickness as box nails, but they have small and tapered heads which are driven into the material.

Figure 2. Characteristics of modern wire nails with full size chart of the ten most common lengths.

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TIN CANS

Tin cans are an ubiquitous part of almost every late 19th and 20th century site. Cans were, and still are, used to contain meats, fish, fruits, eggs, and vegetables in a preserved state for redistribution at later dates. Soldered tin cans were in use in Europe before 1800, but it was about 1810 before a practical tin can was invented. Due to problems with cooking techniques and quality of tin and iron, tin cans did not gain general acceptance until the American Civil War. Then several improvements were made in the production of material and in the canning process itself.

The are a number of types of tin cans that may be found on archeological sites. The type of can will aid in the dating of the site since cans are a good broad time marker.

Hole-in-Top Can

This is the earliest type of can and the longest lived. It had its beginning about 1810 and continued in use until about 1920. The can was made by cutting tin plate iron from sheets, the body formed around a cylinder and the seam soldered. Separate pieces for the bottom and top were cut and soldered. On earlier cans, the ridge of solder often stands out as much as ¼ inch. Later (post 1880) cans were machine soldered and had a more even, less obtrusive, soldered seam.

The hole was left in the top of the can through which food was forced. A smaller cap was soldered in place after filling. The cap had a small hole in its center which allowed steam to escape during the cooking process. A drop of solder was used to seal the pin-hole after cooking. The hallmark of this can style is the hole in the top and the soldered pin-hole (Figure 4a).

Seafood Can

Another major type of can, commonly found in archeological contexts, is the sardine can. The seafood or sardine can is flat and oblong. The pre-1880 cans were made in three pieces and soldered, while post-1880 cans had the base and body formed as one piece. In 1884, the depressed lid became common (Figure 4b). The final innovation occurred around 1918 when a double seamed, open top style was developed.

Quick openers were pioneered on sardine cans. The more common types are a bayonet opener or a wire soldered in a groove near the edge of the lid--1862; and a scored strip of tin plate where the lid and body are attached by the tin strip--1871. In 1895, the key and scored strip method was invented.

Number	Diameter	Height
300	3"	4 7/16"
1 Tall	3 1/16"	4 11/16"
303	3 1/16"	4 3/8"
2	3 7/16"	4 9/16"
2 1/2	4 1/16"	4 11/16"
3	4 1/4"	4 7/8"
10	6 3/16"	7"
18 oz.	2 11/16"	3 1/4"
1 Eastern Oyster or Picnic	2 1/16"	4"

Table 2. Standard Can Size (After 1936)

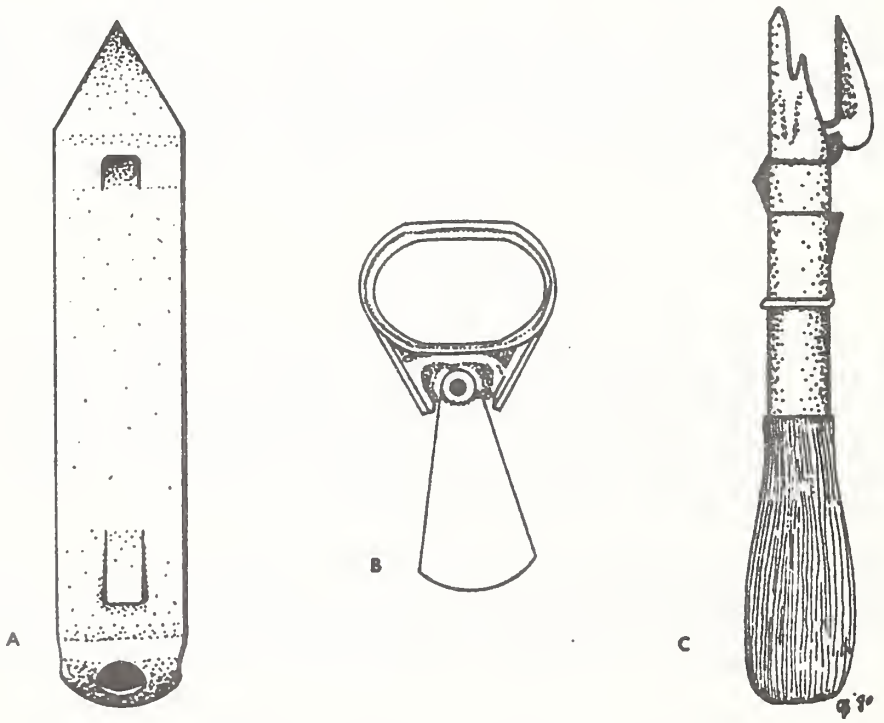

Figure 3. Popular openers of canned products. The combination can and bottle opener (a) was fondly called the "Church key." The modern pull top openers (b) come in a wide variety of shapes while the bayonet opener (c), still in use today, was first seen during the Civil War.

Cans	Date	Figure
Hole-in-Top	1810-1920	4a
thick soldered seam	1810-1880+	
machine or thin soldered seam	1880-1920	
Sardine Can	1810-present	4b
3 piece body	1810-1880	
1 piece body and base	1880-1918	
depressed lid	1884-present	
double seamed	1918-present	
Open Top	1900-present	
Condensed Milk	1860-present	
Flat Top	1885-present	
Tapered hole-in-top	1875-1920	4c
Beer Can	1935-present	
cone top	1935-1955	4d
aluminum top/steel body	1960-present	
aluminum can	1960-present	
tab top opener	1965-present	3b
button down opener	1975-present	
Openers		
bayonet	1862-1875	
scored strip	1871-1895	
key with scored strip	1895-present	
"church key"	1835-present	3a
geared rotating opener	1925-present	
plastic tops	1960-present	

Table 3. Can Dating Guide

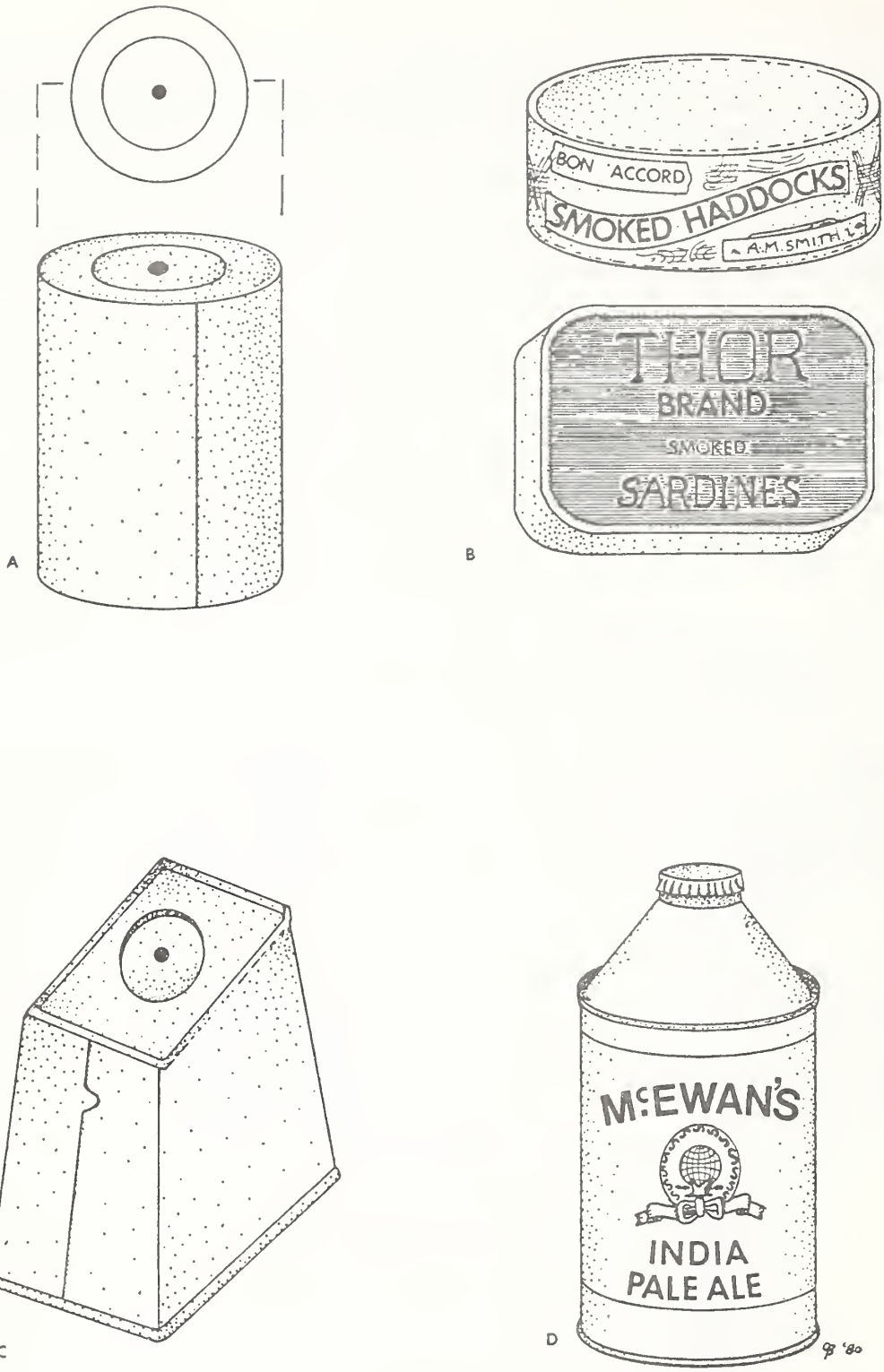

Figure 4. Common varieties of metal cans: (a) hole-in-top can - 1810 to 1920; (b) Sardine cans with depressed top - 1884 to present; (c) tapered meat can - 1875 to 1920; (d) cone top beer can - 1935 to 1955.

Specialty Cans

There is a variety of specialty tin cans. The most commonly found style is the tapered hole-in-top cans (Figure 4c). This can contained corned beef and was introduced around 1875. Another commonly found specialty can is the condensed milk can. Condensed milk was first canned during the Civil War, but it was 1885 that saw the flat topped evaporated unsweetened milk can become popular.

Modern Types

Probably the most common can is the modern open-top can. This can is rolled tin with a hermetically sealed double seam. The tops are attached by soldering under the flange of the cap. This type of can was introduced around 1900, but did not gain general acceptance until 1920.

A commonly found can, but one that is often ignored for dating, is the beer can. Beer in cans was not introduced until 1935. Both the flat-top can and a conical type can (Figure 4d) were brought out on the market. The cone top lasted until the early 1950's, when it was phased out by the ever present flat-top. Until 1950, all beer cans carried the impression "IRTP" for Internal Revenue Tax Paid. Aluminum cans were introduced in 1960, and by the end of the decade, aluminum had all but replaced steel. In the 1960's, aluminum tops were put on steel bodies to enhance their ease of opening. By 1965, the tab top opener was in wide-spread use, having been developed in 1962. Other types of openers have become common since 1975 including the push top or button down of Coors, and the nondetachable rip top that lays down inside of the can. The beer can has a short history, but is a good late time marker.

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GLASS BOTTLES

The earliest glass bottles found in the New World were manufactured by a process of free blowing which resulted in some variability of form among bottles intended to the identical. It also left a distinctive scar, a pontil rod mark, where the bottle was supported at the base during blowing or finishing. Often the scar was sharp edged but it was sometimes ground smooth. The combination of slightly asymmetrical shape and pontil scar makes identification easy for bottles produced prior to about 1810. Bottles manufactured after 1810 will still have pontil scars but, in addition, show scars left by the molds into which the molten glass was blown. The position and length of the mold marks provide good dating information.

After 1857, pontil marks are no longer seen because a new device, the snap case, was in use and left no marks on the bottle. The snap case held the bottle while the maker applied the lip and other finishing touches. Reheating the top of the bottle when the collar was applied tended to obliterate some of the mold marks so these disappear somewhere along the neck.

The semiautomatic bottle machine, patented in 1881, produced a bottle which needed little hand finishing. It left a mold mark to within a quarter inch of the top and the lip was hand ground. The automatic machines of 1903 initiated manufacture of bottles as we see them on store shelves today.

Other benchmarks of glass technology useful for dating include the use of embossed lettering (after 1861) and numerous specialty shapes. In some cases, contents of the bottle can be inferred from shape. Wine bottles, for example, often have a "kick-up" to allow concentration of sediments. Ink bottles are very distinctive and embossed bottles often list the product as well as trade name.

The table and illustrations which follow summarize some of the most conspicuous shifts in technology which are identifiable in the field:

Dates		Traits	Notes
1916-23	All - Blown	"Bottle Pat'd Nov. 1915"	Slimmed down to accommodate standard bottle filling equipment. Protected by first patent. Mold number-Mfr's mark-date appear either on heel or hobble.
1923-37		"Bottle Pat'd Dec."	U. S. design patent #63657.
1937-51		"Bottle Pat. D-105529"	Empty weight of bottle 14.01 oz., capacity 207.0 C.C. Bottle pat. March 24, 1937. "Year-Mfr's Mark-Mold Number confined to hobble.
1951-59		(1) "Min contents" "6-Fl. ozs" & (2) "In U.S. Patent Office"	Common law rights protection with expiration of patent. Mfr's Mark moved to base, leaving Year-Mold number on hobble, e.g. "53-21"
1957-65		"6½ Fl. ozs."	Empty weight 13.80 oz 202.8 c.c.
1958-60	Blown & Painted	"Coke" not on throat	Transitional. Bottler's town ceases to appear Registration dimple appears. Empty Wt. 13.65 oz. 202.1 c.c.
1958-60		"Coke" on throat	Transitional. Painted labels appeared in 1956 but writer has seen none dated earlier than 1958.
1961-62	All - Painted	"Coke" on throat	
1963-65		(1) "Coke" on panel & (2) "6½ oz". on one side of panel	Bottler's town re-appears on base of some bottles. Empty Wt. 13.26 oz. 205.0 c.c.
1965-		"6½ oz". on both sides of panel	Mfr's Marks: © Chattanooga Glass Co.; I Owens-Illinois; LG Liberty Glass Co.; L Lanrens Glass Works; Anchor Hocking.

Table 4. Design changes in the familiar 6½ ounce "Coca-Cola" bottle. These were made of green glass for sale in the U.S. and of clear glass overseas. After 1955 the same shape bottles were produced in several larger sizes. The original design of 1915, slightly fatter than later bottles, is very rare (Table after Gilborn 1968).

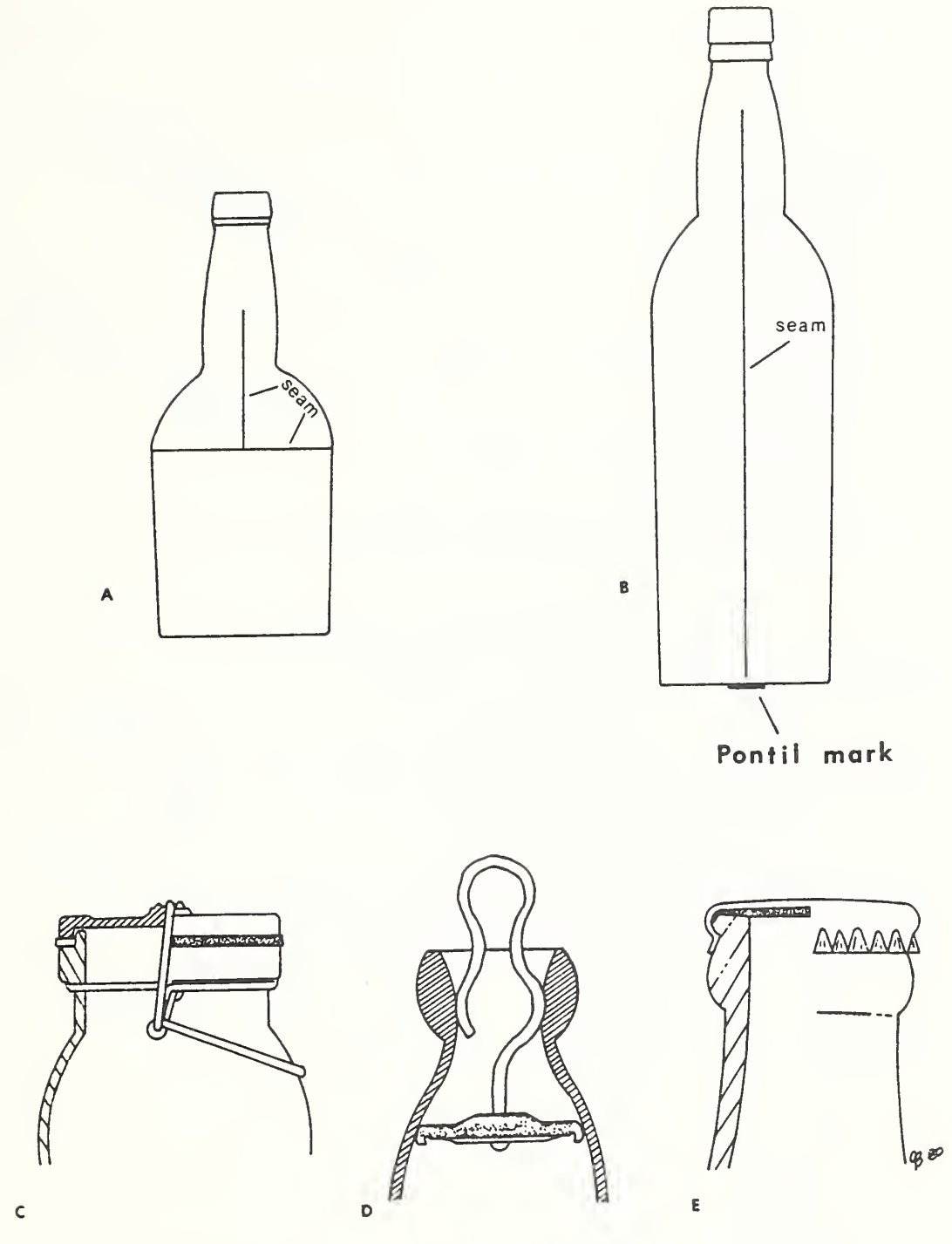

Figure 5. Bottle mold marks and closures

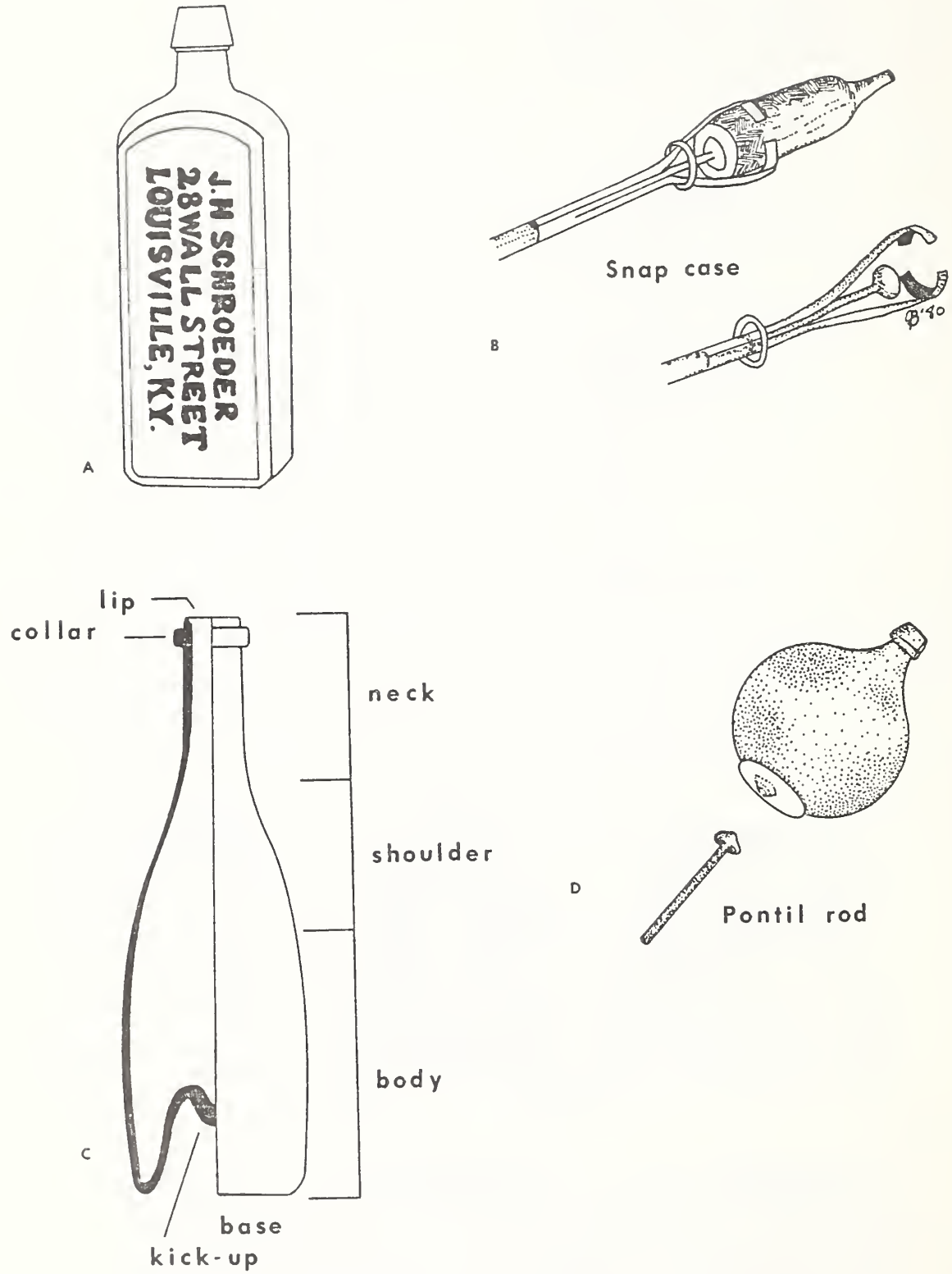

Figure 6. Glass bottle terms and technology: panel bottle (a), snap case (b), bottle terminology (c), and use of the pontil rod (d).

pre-1800	Bottles are hand-blown and thus seamless, asymmetical and pontil scarred.
post 1810	Introduction of the three-piece mold leaving scars around the shoulder and up the neck (Figure 5a). Pontil marks are still present.
1845	Introduction of two-piece mold. Mold scars from base to near lip. Pontil marks still present (Figure 5b).
1857	Introduction of snap case (Figure 6b) eliminates pontil marks.
1858	Mason jar patented.
1861	Introduction of embossed lettering in rectangular panels (Figure 6a).
1872	Hutchinson stopper patented (Figure 5d).
1881	Semiautomatic bottle machines available. Mold scare now runs to within a quarter inch of the top. Lip is ground.
1882	Lightning fasteners available (Figure 5c).
1892	Crown caps introduced. In general use by 1907 (Figure 5e).
1903	Automatic bottle machine patented. This produces today's bottles with seams up the side and over the lip.
1915	Glass formulas delete manganese. (Manganese had been used to make clear glass. The old clear glass, when exposed to ultraviolet light over a period of time, produces the purpled bottles today sought after by collectors.)
1933	Use of "Federal Law Prohibits . . ." on liquor bottles.

Table 5. Benchmarks in glass bottle technology.

Color	Date
Black	1815 - 1885
Purple	1880 - 1915
Aqua	1880 - 1920
Honey	1914 - 1930's
Amber	1873 - present
Clear	1930 - present

Table 6. Correlation of bottle glass colors and dates. The color of a glass container is largely determined by mineral additives to the glass batch. Without specific additives glass color is a pale greenish brown. Modern replicas of all colors are now being sold so some care should be exercised and classification not made solely on the basis of color.

1929-1940	smooth finish, corked neck
29-30	Clorex diamond trademark on bottom
31	brand on neck and shoulder
32	additional lettering on shoulder and heel
33-36	content identification added: pint bottle grows ¼ inch taller to 7-14/16"
37	fill line raised under content identification
38	neck circumference increases to 3¼ inch
39	half gallon bottle with one-finger handle
1940-1962	threaded neck on all sizes
40-42	circumference of pints and quarts is 2-7/16 inches
43-44	pints and quarts have mouth increased to 2-12/16 inches
45-50	grained texture on shoulder and heel: first gallon bottle with single-finger handle
51-54	Solid "Clorex" replaced by outline lettering: grained texture further down label panel
55-59	Side content identification replaced by raised fill line: two-finger handle for gallons and half gallons.
59-62	Bulb-shaped neck: four-finger handle on large bottles.

Table 7. Stylistic changes in Clorex bottles 1829-1962. Data provided by the Consumer Services Department, Clorex. The glass bottle was replace by plastic containers after 1962.

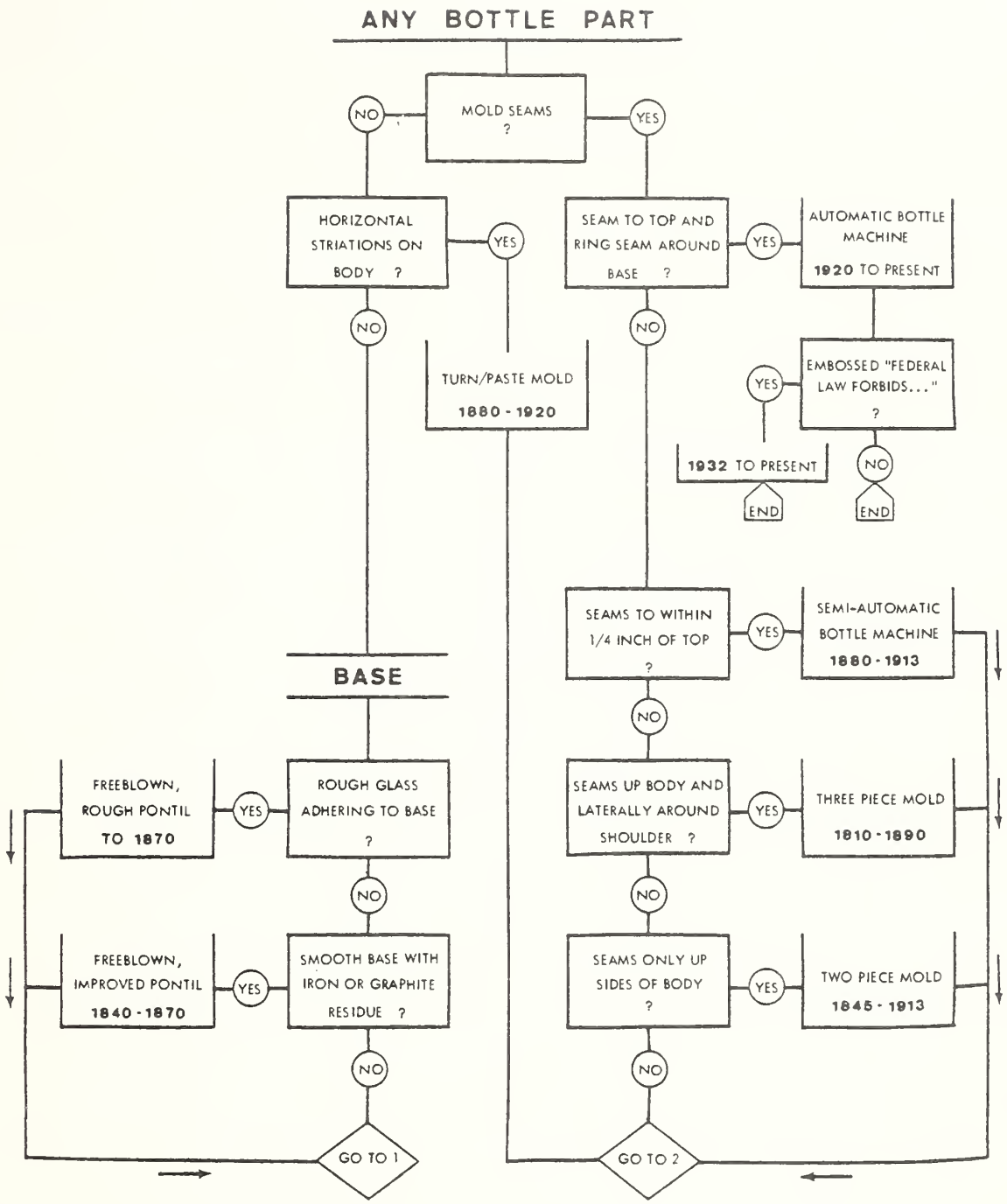

Table 8. Sample of a bottle dating key taken from a more lengthy key in Newman (1970). See Historical Archaeology 4:70-75 for keys based on color, closure, embossing and base type.

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There are many publications now available which include useful data regarding bottle classification. There are also many collectors' handbooks which have mixtures of fact and fantasy. The following references are dependable and not too difficult to locate: some provide bibliographies.

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BUTTONS

Buttons have been made from a great variety of materials and in various sizes, shapes, and colors. This guide will not attempt to describe all types of materials used or styles of manufacture; rather, it will list some of the key attributes that can help in establishing relative dates for buttons commonly found in historic sites in the American Southwest. Sources listed in the bibliography should be consulted for more detailed information.

Size

Button size is expressed in lines (or "lignes"). Forty lines equal one inch diameter. The following scale was used by Sears Roebuck and Co. in 1908 to correlate lines and inches:

Lines	12	14	16	18	20	22	24
Inches	1/4	5/16	3/8	7/16	1/2	9/16	5/8

Shirt and dress buttons are usually smaller than coat and jacket buttons. The 1908 Sears catalog refers to shirt and dress buttons as lines 10 to 20. Vest, coat and jacket buttons are sizes 24 to 36.

Shanks

Figure 7 illustrates 13 different shank styles found on buttons made between 1700 and the present. Many different construction techniques, used to make one and two piece buttons, are also illustrated.

Back Marks

Back marks are the stamps found on the backs of buttons. They may include the manufacturer's name and/or location, a symbol or trademark. It was not until after 1800 that such marks were used.

Materials

Abalone: See "shell"

Agate: Moss agate or chalcedony, cut and polished in various shapes, has long been used to make buttons. Agate disks were available in the 1900 Sears catalog.

Aluminum: In the later nineteenth century, aluminum buttons were more costly than silver or gold. They were produced in one or two pieces and stamped with delicate designs. Aluminum was also used in the 1940's and 1950's, particulary for stamped uniform buttons.

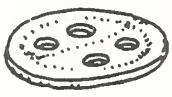
1700 - 1765  Wedge shank; cast button	1700 - 1790  Gut loop shank	1760 - 1790  Cast white metal loop shank	 Box type shank; cast button
1760 - 1785  Cone shank	1750 - 1812  One piece button and shank	1812 - 1830  Two piece metal button	 Cut shank
1785 - 1800  Alpha loop shank	1812 - 1820  Omega loop shank	1830 - present  Two piece button Sander's type	 Cloth shank
1750 - 1830  Bone button center turned	1800 - 1860  One piece cast metal	post - 1870  Two piece; pressed metal	 Key shank JW

Figure 7. Shank styles and dating guide to civilian buttons.

Bakelite: This is a synthetic plastic invented in the United States between 1907 and 1909. Bakelite buttons were produced until about 1930 when other plastics were developed, the buttons were plain, drab colors and the word "Bakelite" was molded on the back.

Bone: Disks cut from animal bones have been made in a variety of sizes from prehistoric times. They are usually sew-thru types with from two to five holes, although some with metal rims and shanks have also been made. Since 1850, carved and inlaid bone buttons have also been made. Bone buttons are made only rarely now but more common on sites predating 1850.

Brass: Probably the most common button material, brass has been used in the United States since the 1800's for men's clothing and uniforms. From 1800 to about 1860, one-piece buttons were made; after about 1860 two-piece buttons were made.

Calico: These china buttons, made in the United States between 1848 and 1865, were decorated with tiny calico transfer patterns.

Celluloid: This synthetic, ivory-like material was developed in 1869. Celluloid is distinguished from ivory by a carbolic odor produced by heating or rubbing the surface of the button. After 1900, a two-piece button was made by placing a thin piece of celluloid over another type of material.

Daguerreotype: During the Civil War (1860-1865), daguerreotype photographs were used on two piece buttons with glass fronts and metal backs.

Ferrotypes or Tintypes: Developed during the Civil War, ferrotype photographs were also made into buttons. They do not have the "Coppery" finish found on daguerreotype photos.

Glass: Many different types of blown, molded, and fused glass have long been used for buttons. Glass has been used for all types of button construction, and a great range of colors are known. Luscomb (1967:80-89) discusses over twenty-five different kinds of glass buttons.

Horn: Disks, metal shank and self-shank buttons cut from horns and antlers of animals were made in the United States and Europe. In the 19th century, horn was sometimes processed (or imitation horn was made) and stamped with intricate designs.

Ivory: Elephant tusks, the teeth of whales, and tusks of the walrus and hippopotamus were used for "ivory" buttons. Ivory can be distinguished from celluloid by fine-grained striations which are characteristic of the structure of teeth and tusks.

Japanning: This is a lacquering process developed in Europe about 1800. Tin, wood, brass or other materials were coated with successive layers of high grade varnish. Black was the most common color for japanned buttons. The term "lacquered" refers only to those varnished buttons produced in the Orient.

Mother-of-Pearl: See "Shell."

Pewter: Pewter buttons with wedge and wire shanks were cast in the late 18th and early 19th century for use on men's clothing. After 1800, a pewter button with an iron shank was made. Luscomb (1947:148) lists the names of 21 pewterers whose names appeared on pewter buttons in the early 1800's. After 1810, many pewterers switched to brass. Pewter buttons, painted and decorated with other materials, were manufactured in the late 19th century.

Plastic: The manufacture of synthetic plastic buttons expanded after 1930. In the 1940's, it was common to trim and inlay other materials into a plastic button body.

Porcelain: Porcelain buttons were manufactured in several styles between 1850 and 1920. Hand painted floral designs were popular between 1900 and 1920.

Rubber: Between 1849 and 1851, Nelson Goodyear patented and improved the manufacture of hard rubber. Often the name "Goodyear" and the dates "1849-1851" are molded on the backs of hard rubber buttons. These markings refer to the dates of the material patents, not the manufacture date of the buttons. Most buttons were black, or occasionally reddish brown, and ranged from ¼ to 2 inches in diameter. Geometric designs or concentric rings were molded more often than any other designs. Rubber buttons were also made by the Indian Rubber Company before 1880-1890's. Novelty Rubber Co. (N.R.Co.) was a manufacture from 1855 to 1870.

Shell: Because the inner layers of many types of shells are similar, it is difficult to classify buttons according to the types of shells from which they were cut. In the factory, shells are sorted by color, regardless of species. Fresh water shells are not as irridescent or brilliant as deepwater species. In the United States, fresh water shells are used for utilitarian buttons. It is difficult to date shell buttons with certainty because of the long history of shell as a button material. All types of holes, shanks, shapes, decorations and sizes are used for shell buttons (Luscomb 1967:177-180). Smooth backs generally postdate 1900. Intricate carved designs and cameos generally predate 1880. Commercially-made shell buttons were introduced into the United States from France in 1855 (Fontana and Greeleaf 1962:98).

Wm H. Horstmann	1829-1851
Wm H. Horstmann & Sons	1843-1859
Horstmann Bros & Co	1859-1863
Wm. H. Horstmann & Co	1864-1866
Horstmann Bro & Co	1867-1895
Wm H. Horstmann Company	1895-1942
L. H. & S.	1821-1829
JML & WHS or JML & W. H. Scovill	1827-1840
Scovills & Company	1840-1850
Scovill Manufacturing Company	1850-present

Table 9. Specific dates for button back-marks

Materials	Dating Range
"Bakelite" Plastic	Post 1907 - Pre 1940
Brass - Uniform Buttons	Post 1802
Calico - Porcelain	1848 - 1856
Celluloid	1869 - 1920
Daguerreotypes	1860 - 1865
Ferrotypes	1860 - 1900
Plastic - Synthetic	Post 1930
Porcelain	1850 - 1920
Rubber	Post 1849
Shell	Post 1855
Uniform Buttons	
Two-piece Construction	Post 1830
Line Eagle Device	1833 - 1902
Recessed Shield & Raised Service Letter	Post 1840
Voltigeurs Symbol (V)	1847 - 1849
Cavalry Button (C)	Post - 1855
Raised Shield and Stippled Background	Post 1880 - 1902
Plain Eagle, Convex Front	1855 - 1902
Line Shield Eagle Breast	1855 - 1884
Staff button; 13 Stars around eagle with lined shield	1832 - 1872
Staff button; 7-13 stars above shield	1872 - 1902
Ordinance Corps - Crossed cannons	1840 - 1902
Modern enlisted men's button	1902 - present

Table 10. Marker Dates in Button Manufacture

Vegetable Ivory: A material made from palm nuts, vegetable ivory was imported from South America to use in place of tusk and tooth ivory. The nuts were processed into embossed, stamped, or stenciled buttons in the United States. They ranged in size from ½ to 1½ inches in diameter and were dyed many colors.

Wood: Eighteenth century wood buttons were generally rather plain, but 19th century wood buttons were decorated with metal, lacquer inlay and other materials. Wooden buttons are still made but are generally treated with a synthetic coating to preserve them.

Civilian Clothing

Automatic or Bachelor Button: A two-piece, mechanical button that could be attached and removed from a garment without sewing. These buttons, advertised by Sears, Roebuck & Co., came in blue, black and silver colored metal and were attached to garments in somewhat the same way as a modern tie-tack.

Shoe: Small metal or glass domed buttons were used on shoes until about 1930. Black and white were the most popular colors. The 1927 Sears catalog shows button in use only on ladies' T-Strap shoes and infants' shoes.

Studs: Small buttons made of wide variety of materials, affixed to a metal post and used to close a garment without the necessity of sewing. Between 1890 and 1920, they were used on ladies' dresses and men's collars and cuffs. Today, studs are used only on men's formal shirts.

Work-clothes Buttons: Two-piece metal buttons, used on men's jackets, coats and overalls. The face of the button was usually made of brass and was embossed with the name of the clothing manufacturer. The backs had Sander's type wire shanks. In the late 19th century, this type of button was widely used.

U. S. Military Uniform Buttons

In this brief summary, it is not possible to describe the great variety of buttons that have been produced for U.S. Military and civilian uniforms. The bibliography lists six references that can be consulted for details about a particular type of uniform button. Summarized below are the major types of U.S. Army buttons manufactured between 1846 and 1902. These are the buttons that will most likely occur in the western United States.

As a rule, uniform buttons can be distinguished from costume buttons by their precision cut and burnished designs. On costume buttons, although decorated with similar seals, crests, or insignia, the details will not be as precise as a uniform button. All buttons made for the military were manufactured according to strict government specifications. Wire loop

shanks, of the Sanders types, were used on all government issued buttons. After 1830, most military buttons were of two-piece construction. Brass was the material most commonly used after 1830 for the enlisted men's uniforms.

Brinkerhoff (1972) describes only two sizes of buttons used by the U.S. Army in the West. Uniform coat and overcoat buttons were 23 millimeters in diameter (15/16 inch or about 38 lines) and cuff, vest or jacket buttons measured 15 millimeters, 5/8 inch or 24 lines. Back marks are generally stamped with the name of the manufacturer, but on some buttons, the backs are unmarked. Horstmann Bros. & Co. of Philadelphia and Scovills & Co. of Waterbury, Connecticut, were the major suppliers of military buttons (Figures 8e & 8f).

Brinkerhoff reports that immediately prior to the Civil War, the army re-issued obsolete buttons for use in Western military posts. For example, found in the archeological excavation at Fort Buchanan, Arizona (1857-1861), was a type of button issued between 1808 and 1829.

The Line Eagle Device brass button was the standard enlisted man's uniform button in use between 1833 and 1902. On this button, the eagle faces right and holds olive branches in his right talon and arrows in the left. After 1840, the center of the eagle shield is depressed and the letter of the service unit is stamped. The letters are as follows:

A = Artillery

D = Dragoons

I = Infantry

R = Mounted Rifles

V = Voltigeurs (1847-1849)

C = Cavalry Officer (Post 1855)

The officers' buttons were similar, but were gold plated, and between 1880 and 1902, the shield was raised with a stippled surface behind the service letter (Figure 8d).

Between 1840 and 1850, the Dragoon button changed slightly. The eagle appears larger and more stylized than on the earlier button. The wings are long and narrow as opposed to the wide wing spread on the 1840 button (Figures 8a & b).

A General Service button was issued between 1855 and 1902. From 1855 to 1884, the button appears with a recessed, wide, flat, lined shield on the eagle's breast and the wings are long and narrow. After 1884, the shield is smaller and raised, the eagle's wings are short and wide, and the eagle's head is more pronounced (Figures 9a & 9b).

Staff buttons, worn by the Medical, Quartermaster and Signal officers, are rather distinctive. The center of the button is raised and stamped with a striped shield eagle. Around the eagle are 13 stars and a plain edge that form the rim of the button (Figure 9c). After 1872 and until 1902, the

staff button had a vertically lined center shield, with 7 to 13 stars above the shield. The Ordinance Corps wore a distinctive brass button between 1840 and 1902. The front shows cross-cannons in relief, encircled by a wreath containing the words "Ordinance Corps" (Figure 9d).

In 1902, the modern army button was produced (Figure 9e). The eagle shield is squared and vertically lined, and the 13 stars appear in a cluster above the eagle's head. Bronze buttons were used on field uniforms and gilted buttons on uniform dress until the 1940's.

Tables 9 and 10 summarize the key dating elements in button manufacture in the United States. Additional information can be found in the list of sources attached.

a. 1840 Dragoon

b. 1850 Dragoon

c. Post 1855
Cavalry

d. Post 1880 - 1902
Infantry Officer

e. Scovills' backmark

f. Horstmann's backmark

JW

Figure 8. Military buttons and back marks.

a. 1855 - 1884

b. 1884-1902

c. 1832 - 1872
Staff button

d. 1840 - 1902
Ordinance Corps

e. 1908 - present
Enlisted man's

JW

Figure 9. Military general service and corps buttons.

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FIREARMS

Technological development in firearms throughout the past 200 years provides many solid dating opportunities for the historical archeologist. Evolution of the firing mechanism from the matchlock to modern metallic cartridges required changes in both the arm and ammunition. These changes are well documented and have left artifactual evidence at sites.

A large literature is available which can be only partially listed here. In addition to the titles given in the following bibliography, it will be profitable to consult Volume 22 of the Missouri Archaeologist, for the whole volume is devoted to aspects of the study of flintlocks.

The matchlock will not be discussed here for it was all but unknown in the Southwest. The snaphaunce was introduced about 1600 but was replaced by the flintlock after about 1625. The two weapons have many points in common but the flintlock was clearly superior in that the fall of the cock pushed the frizzen away from the flash pan, thus, eliminating the need to manually lift a flash pan cover. The flintlock was the most important ignition system used in firearms during the American fur trade period and through most of the history of the Southwest. The Spanish version, the escopete de arzon, differs little from the generalized flintlock shown in Figure 10. Although numerous in the 16th century, only a few of the Spanish pieces from the Southwest are known today. Brinckerhoff and Chamberlain (1972) illustrate the major types.

It is curious that so few gunflints are known from the Southwest. A shooter would replace his flint after every 15-20 shots and there must have been thousands of the firearms in use in the area up until 1820. When found, it is often possible to determine the type weapon and country of origin for at least the flint. There were two main sources of gunflint, France and England. It is thought that the French product is typically made of a translucent, greasy, light colored flint and has a round, gnawed heel. A British gunflint is characteristically black and square with no secondary chipping around the sides and heel (Figure 10c).

Design changes in the lock plate, as well as dated manufacturers' marks, make the lock plate a very useful find. Even highly oxidized plates can often be restored to the point that lettering may be read. Articles in the Missouri Archaeologist will be particularly heplful in identification of lock parts.

Invention of the percussion cap (Figure 11a) around 1820 made the flintlock a dinosaur overnight. The obvious advantages of the cap were so dramatic that by 1825 flintlocks were almost entirely replaced, or converted (Figure 11b). It was a fairly simple matter for a gunsmith to adapt an old gun to the new caps. The ammunition, lead balls, will be indistinguishable from that of flintlocks and the caps themselves will be very illusive in archeological context. They are derby-shaped, usually about one eighth of an inch in depth and diameter, and stamped out of thin copper. In use, the cap was placed over a nipple whose hollow body led the burning fulminate to the main powder charge (Figures 11a, b and c).

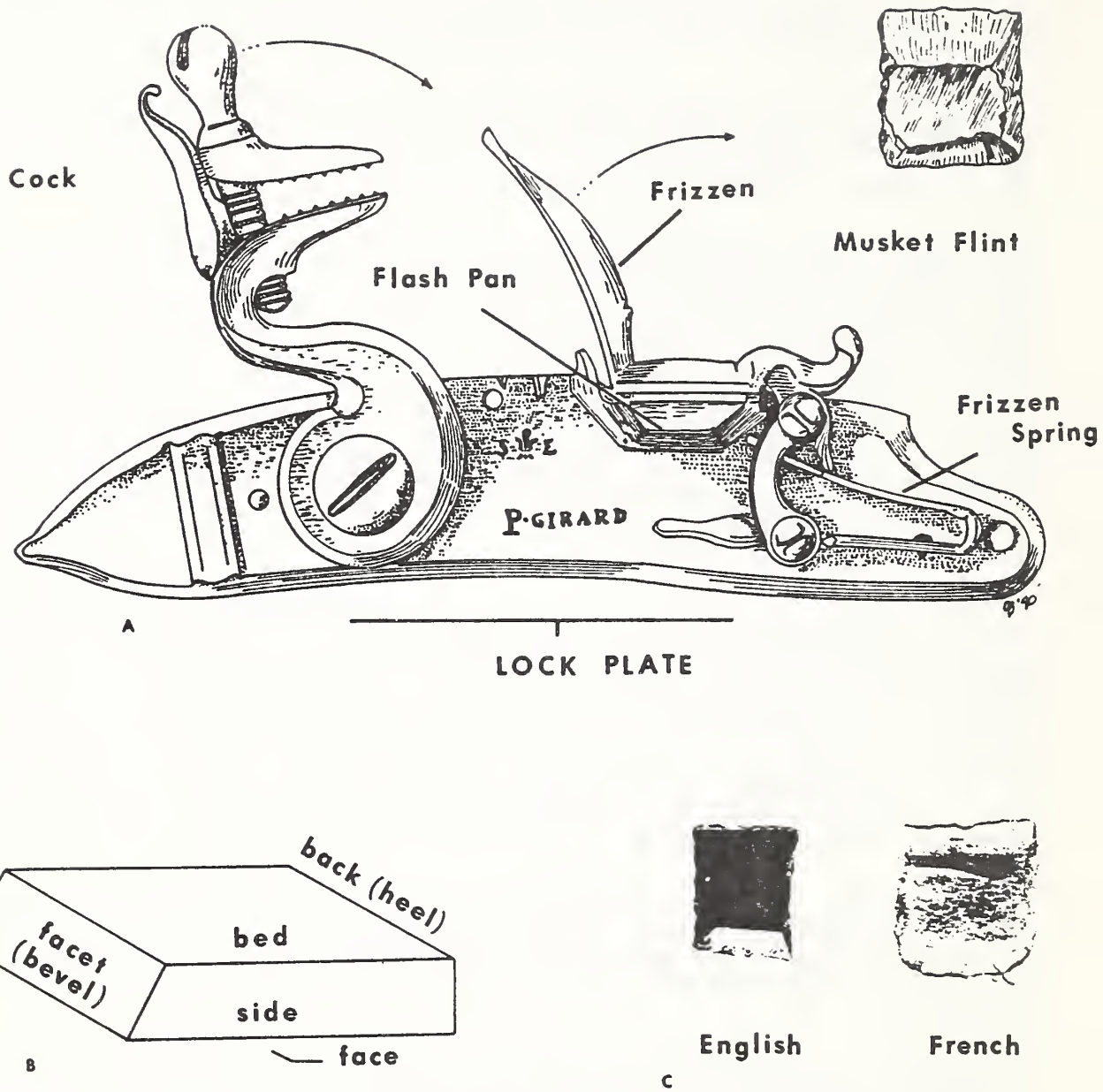
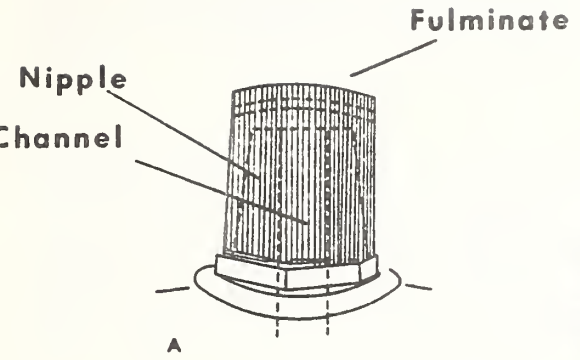
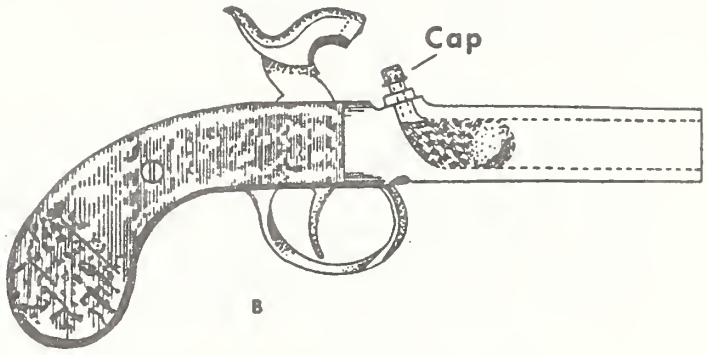


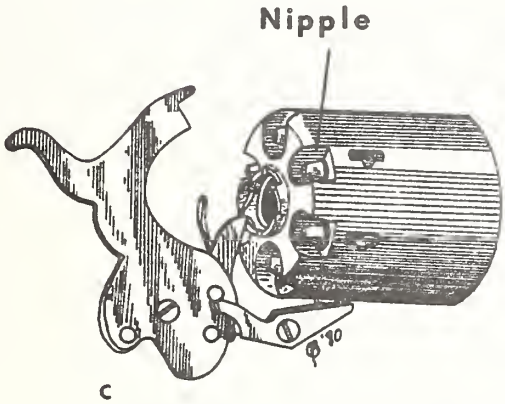
Figure 10. The flintlock and flints.



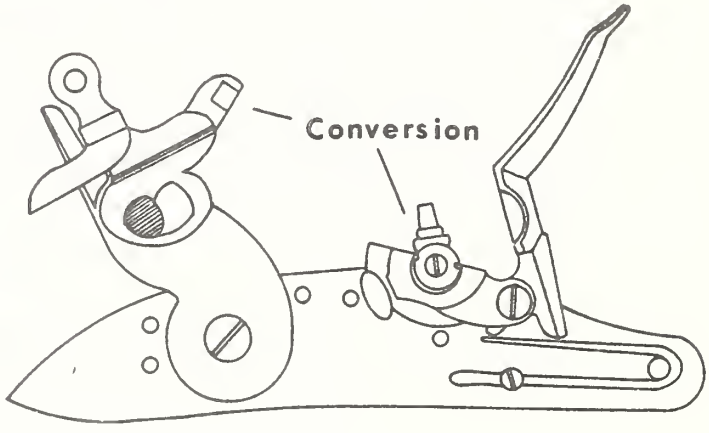
Percussion Cap



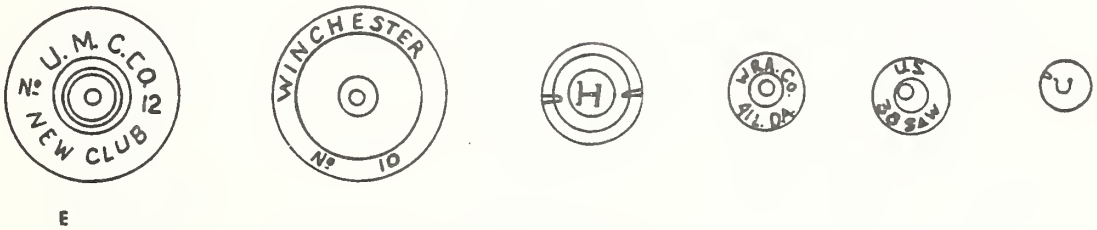
Cap and ball



Cap revolver cylinder



Flint lock converted for caps



Cartridge headstamps

Figure 11. Firearms and cartridge head stamps.

The recent rebirth of interest in cap and ball shooting has probably placed more caplock rifles in the field than at their peak in the 19th century, so one should be particularly cautious in identification of caps at archeological sites.

The pinfire cartridge of 1836 was the first self-igniting cartridge but metallic cartridges did not come into general use until brass was used for the cases in 1870. Copper, used earlier, proved too weak. It is unlikely that nonmetallic cartridges will have survived in archeological context so illustrations are provided only of the three common metallic types, pinfire, rimfire, and centerfire (Figure 12). These are named for the method of ignition and placement of fulminate with the cartridge base.

Metallic cartridge cases can be useful dating tools because of the fairly frequent introduction of new calibers, case designs and changes in information stamped on the head. Examples of some head stamps are shown in Figure 11e. In addition, the marks left by the firing pin may be instructive as some weapons used one or two pins and of various diameters and cross sections. Table 11 summarizes some of the developments in firearms but the dates listed for cartridges are only a fraction of what can be discovered. The number of combinations of caliber, manufacture, and other variables preclude presentation of a complete listing here.

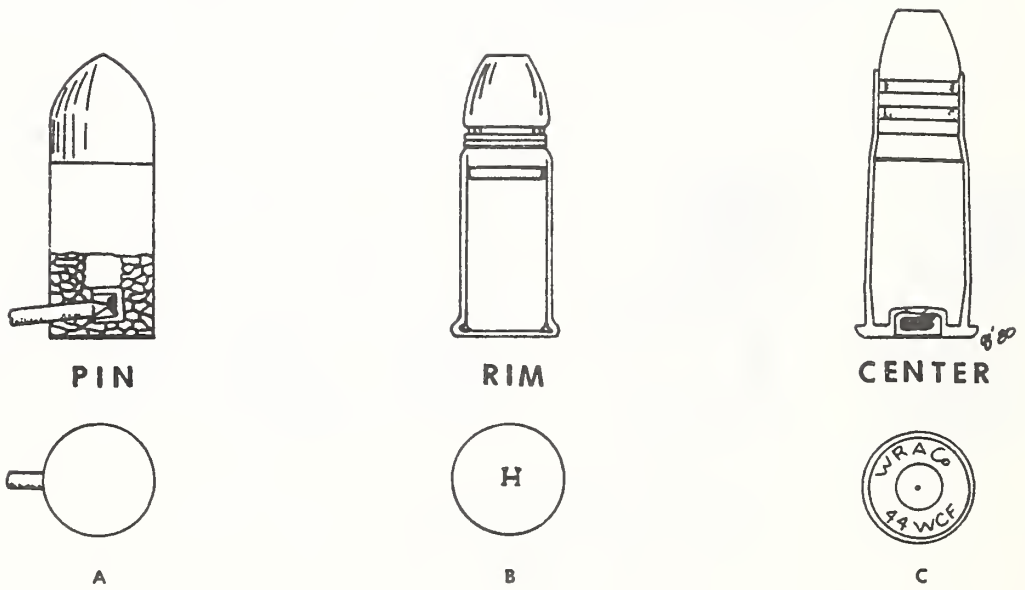


Figure 12. Metalic cartridge primers.

Snaphaunce	1600 - 1700
Flintlock	1625 - 1825
Caplock	1825 - 1875
Metallic cartridges	1855 -
.22 cal. (copper case)	1857 - ?
Union Metallic Cartridge Co.	1867 - 1910
Smith & Wesson Cartridges (mfd.)	1855 - 1869
.32 cal. rimfire	1861 - ?
.44 cal. tapered Colt Cartridge	1868 - 1869
.44 cal. S&W centerfire pistol cart.	1869 -
.38 cal. S&W	1876 -
.41 cal. Colt double action cart.	1877 - 1910
Copper jacketed bullets	1880 -
.45 cal. (pistol) cartridge	1873 -
.45-70 (rifle) cartridge	1871 -
.44-40 (rifle) cartridge	1873 -
Union Metallic merged with Remington	1910 -

(Introduction dates of many other calibers may be found in current editions of the Speer Handloading Guides.)

Table 11. Dates in the development of firearms and ammunition.

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